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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,675	01/07/2004	Alexander S. Kozlov	H0005756-1060	1132
7590 Honeywell International, Inc. Law Dept. AB2 P.O. Box 2245 Morristown, NJ 07962-9806			EXAMINER WILKINS III, HARRY D	
			ART UNIT 1753	PAPER NUMBER
			MAIL DATE 07/31/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/753,675	Applicant(s) KOZLOV ET AL.	
	Examiner Harry D. Wilkins, III	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-23 and 27-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-30 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-23 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 June 2007 has been entered.

Status of Claims

2. The claim rejection under 35 USC 112, first paragraph was previously withdrawn in the advisory action mailed 21 May 2007.
3. The claim rejections under 35 USC 103 of claims 1-5, 7-14 and 27-30 based on Alperine et al in view of Honey et al has been withdrawn in view of Applicant's amendment to those claims requiring that the particles and the electrolyte composition do not include aluminum. It should be noted that claim 15 does not exclude aluminum from being present in the particles.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-4, 8-23 and 27-30 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject

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matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. While the specification as filed provides reasonable support for the particles not including aluminum (since aluminum is listed as one among the many elements possible for the particles, it is considered that Applicant contemplated at the time of the invention particles not including aluminum), the specification fails to provide sufficient support that the electrolyte composition did not include aluminum. In fact, Applicant stresses (see e.g.-paragraph 36) that the electrolyte be free of sulfur, chlorine and phosphorous, but at no point indicates a preference for ensuring the electrolyte to be free of aluminum. It is suggested that the claims be amended to delete the reference to the electrolyte composition not including aluminum.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darolia et al (US 6,974,636).

Darolia et al teach (see abstract and cols. 3-4) teach a process for electroplating platinum onto a substrate including the steps of (a) providing the substrate and (b) electroplating a metal layer on the substrate by "entrapment plating", which operated by

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electroplating platinum from a platinum salt contained in the electrolyte and depositing particles of supplementary constituents, be it the other platinum group metal or "minor amounts ... of non-platinum group metals such as aluminum, zirconium, hafnium and chromium" by incorporation of particles of the metals into the electrolyte. The metal layer is deposited from a single electrolyte composition during a single electrolytic step, wherein the particles of the supplementary constituent are deposited throughout the metal layer from the electrolyte composition.

Darolia et al fail to discuss the size of the particles of the supplementary constituent.

Darolia et al teach that the deposited metal layer had a thickness in the range of about 10 to about 100 microns. In order for the particles of the non-platinum group metal such as zirconium or chromium to become entrapped within the electroplated platinum, the particles would have had to have been no larger than the thickness of the deposited layer. Thus, when depositing a 10 micron metal layer, one of ordinary skill in the art would have realized that the particles of the non-platinum group metal would have had a size in the range of 1 to 10 microns in order to permit formation of the layer where the particles became entrapped.

Regarding claims 2 and 4, Darolia et al suggest using combinations of the non-platinum group metals, including using zirconium or hafnium in addition to chromium.

Regarding claim 3, Darolia et al teach using chromium as the particles. Since chromium spontaneously reacts with air to form chromium oxide, the chromium particles

would inherently possess at least some chromium oxide. Thus, the particles would "comprise" chromium oxide.

Regarding claim 9, the deposited metal layer formed a coating on the substrate of Darolia et al, the substrate was an alloy, and the method included a further step (see col. 4, lines 48-49 and lines 59-67) applying a heat treatment (diffusion treatment) to form a metallic solid solution comprising platinum metal, the supplementary constituent and constituents of the substrate.

Regarding claim 10, Darolia et al suggest using combinations of the non-platinum group metals, including using hafnium in addition to chromium, such that chromium was the supplementary constituent and hafnium was the reactive element.

Regarding claim 11, Darolia et al teach that the particles were entrapped within the platinum metal.

Regarding claim 12, Darolia et al suggest using chromium metal as the particles.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darolia et al (US 6,974,636) as applied to claim 10 above, and further in view of Strangman et al (US 6,306,277).

Darolia et al is silent with respect to the details of the platinum electroplating process, stating that conventional electroplating chemistries could be used (see col. 4, lines 16-58) but fails to disclose an electroplating electrolyte which included dinitroamine platinum.

Strangman et al teach (see abstract and claims) a process of electroplating platinum utilizing an electrolyte comprising dinitrodiamine platinum at voltages of 0.2-6.0 V. The process was able to reduce contaminants in the electroplated platinum layer.

Therefore, it would have been obvious to one of ordinary skill in the art to have utilized the electrolyte and operating voltage as taught by Strangman et al for the platinum electroplating step of Darolia et al because Strangman et al teach that the process reduced impurities in the electroplated platinum layer.

9. Claims 15-19 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al (US 6,183,888) in view of Honey et al (US 4,810,334).

Alperine et al teach (see abstract, figure 1 and cols. 5-7) a method for preparing a coated component including (a) providing a substrate (10), (b) electroplating a metal layer (12) on a surface of the substrate, wherein the electroplated metal layer comprised platinum metal and particles (11) of a supplementary constituent with a reactive element entrapped within the platinum metal, wherein the supplementary constituent included Cr and the reactive element included Y, (c) depositing aluminum onto the electroplated metal layer and (d) forming a platinum aluminide coating on the substrate, wherein the platinum aluminide coating included the supplementary constituent. The electrolytic bath did not contain aluminum, with the exception of any aluminum present in the particles.

Thus, the difference between the disclosure of Alperine et al and the presently claimed invention is that Alperine et al teach depositing the particles as a separate step from the electroplating step.

However, it has been held previously, see *In re Tatincloux* (108 USPQ 125 (1955)) and *In re Freed* (165 USPQ 570 (1970)), that in certain instances it would be obvious to one of ordinary skill in the art to perform two steps, which in the prior art were performed in sequence, in a simultaneous manner. However, as per *In re Freed* an evaluation of facts is necessary.

In support of the conclusion of obviousness, the Examiner cites Honey et al, which teaches a step of electroplating, wherein MCrAlY particles are co-deposited during an electroplating step.

As such, the prior art provides a reasonable expectation of successfully performing the platinum electroplating step of Alperine et al simultaneously with the deposition of the MCrAlY particles.

In view of the teachings of Honey et al, it would have been obvious to one of ordinary skill in the art to have provided an electrolyte for co-deposition of platinum with the particles.

It should be noted that the scope of claim 15 does not exclude aluminum from being present in the particles. Further, as can be distinguished from comparing the language of claim 15 to the language utilized in the other claims, aluminum present in the particles is not considered to be aluminum present in the electrolytic bath.

Regarding claim 16, Alperine et al, as supported by Honey et al, suggest co-deposition of the platinum and the particles.

Regarding claim 17, the particles would have been maintained in suspension as suggested for the electrophoretic deposition of particles (see col. 6 of Alperine et al).

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Regarding claim 18, it would have been within the ability of one of ordinary skill in the art to have selected an optimum concentration of particles within the electrolyte in order to achieve the desired ratio of platinum to particles in the electroplated layer.

Regarding claims 19 and 22-23, Alperine et al teach (see col. 7) step 3 of heating after the electroplating step and before the aluminizing step. The heating occurs at temperatures of 750-1250°C and is sufficient to cause interdiffusion of the coating with the substrate.

10. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al (US 6,183,888) in view of Honey et al (US 4,810,334) as applied to claims 15 and 19 above, and further in view of Adams, Jr (US 154,435).

Alperine et al teach a post-electroplating heat treatment, but that heat treatment causes interdiffusion of the platinum with the substrate and occurs at temperatures outside the range of claim 21.

Adams, Jr teach the concept of applying a moderate heat treatment to an article coated by electroplating to reduce the occurrence of "stripping" of the electroplated layer.

Therefore, it would have been obvious to one of ordinary skill in the art to have applied a heat treatment as taught by Adams, Jr to the process of Alperine et al to improve the bonding between the substrate and the electroplated platinum to reduce the occurrence of "stripping".

Allowable Subject Matter

11. Claims 27-30 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, including the suggested remedy set forth in this Office action.

12. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, including the suggested remedy set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: the closest prior art is considered to include both Alperine et al and Darolia et al. However, Alperine et al clearly requires aluminum to be contained in the deposited particles, and thus, teaches away from depositing particles not including aluminum. Darolia et al fails to teach a subsequent step of aluminizing the article, and in fact teaches away from subsequent aluminizing at col. 6, lines 26-29 by stating that the platinum-alloy bond coat (i.e.-non-aluminized coating) performs significantly better than a platinum-aluminide bond coat.

Response to Arguments

14. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

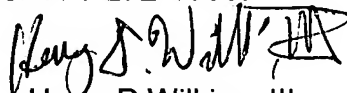
15. Applicant's arguments with respect to claim 15 are not deemed persuasive because Applicant's arguments are not commensurate in scope with the claim language as noted above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 7:45am-4:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Harry D Wilkins, III
Primary Examiner
Art Unit 1753

hdw